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ABSTRACT

The purpose of this study was to determine the effects of a teacher-directed model (TDM) and a decision-sharing model (DSM) of instruction on the development of body-concept and reduction of anxiety in elementary-age children. The treatment groups consisted of 99 public school children, grades three and four, who participated in either a movement program in which the teacher made all the decisions (TDM) or in a program where they shared in the decision-making process (DSM). An additional 48 third- and fourth-grade children were used as a control group. The Cheffers Adaptation to Flanders Interaction Analysis System (CAFAIS) was used to verify the two treatments used in the study. The dependent variables were measured by the Osgood's Semantic Differential Technique for Body-Concept Measures and Sarason's General Anxiety Scale for Children. Results indicated that there was no significant difference between the TDM and DSM groups for body concept improvement. It was also found that girls have a more positive concept of their body than boys. The findings from the anxieity scores indicated that anxiety levels in fourth-grade males appear to be reduced when exposed to a teacher-directed model. However, a decision-sharing approach was found to have significant effect on reducing anxiety levels in third-grade females. (Author)

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Instructional Models and the Development of Body Concept and Anxiety Reduction in Elementary School Children

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Introduction

Controversy continues to exist over the implementation of the so-called "open"classroom approach in elementary schools. Some educators believe this approach is of great benefit to both student and teacher--the student learns to make decisions, and the teacher is less burdened with classroom "structure", thus giving her/him more time to spend with students individually. Others feel that the traditional teacher-directed method is the better of the two, insisting that students need the rigid discipline and framework of the "closed" classroom. Unfortunately, many confuse the issue of open classroom teaching with those models of instruction which allow for chaotic, non-directed, and contra-productive learning. Miller, Cheffers, and Whitcomb (1974) point out that there is great difference between the classroom which is ""student-centered" and the one which is "student-dominated."

Because decision-making is not always an easy task for the elementary-age child, attempts to implement a student-centered classroom too quickly have often ended in disaster for both teacher and student. Mosston (1969) suggests that there is a need to "wean" students from a command-oriented approach to a stage where the child predominates in the decision-making process.

Research in specific decision-making models has indicated casual effects on certain psychological and motoric components in elementary-age children (Dougherty, 1970; Mancini, 1974; Martinek et al, 1977). Interestingly much of this research has shown that specific amounts of decision-making do not necessarily guarantee total physical and psychological growth. For example, Dougherty (1970) and Martinek et al (1977) found that a teacher-directed instructional approach had a greater influence on physical fitness and motor skill development than that of a decision-sharing approach. However, a

decision-sharing model was found to have greater effects on self-concept (Martinek et al, 1977) and attitudes (Mancini, 1974). Such findings suggest that physical and psychological components are differentially affected by varying degrees of decision-making, and that certain individuals may not develop quickly and effectively in a less structured environment. The future development of decision-making instructional models is dependent upon further investigation to determine how much decision-making children can effectively handle.

The purpose of this study was to determine the effects of a teacher-directed model and a decision-sharing model of instruction on body concept and anxiety in elementary-age children.

Methodology

Subjects

In order to carry out a "field based" investigation, the researcher selected subjects from two rural New England public schools. The population from which the samples were randomly drawn consisted of 300 children from one school, and approximately 200 children from the other school. Neither school offered any type of formal physical education instruction within their regular school program. Therefore, the only exposure to an organized physical activity program was through the treatments given to the children during the time of the study.

The children from both schools were from the third and fourth grade with similar social, cultural, and economic backgrounds. The children were randomly assigned to one of three groups: a) the Teacher Directed Model Group (TDM), (N=46); b) the Decision Sharing Model Group (DSM) (N=53); and c) the Control Group (N=48). Table 1 provides a group x grade x sex breakdown.

INSERT TABLE 1 HERE

Procedures

Treatments were administered on Tuesdays and Thursdays for forty minute sessions to two groups of children. Both treatments were given at the elementary school sites. The length of the treatments was ten weeks. Those students instructed under a teacher-directed model (TDM) attended on Tuesdays, while those instructed under a decision-sharing model (DSM) attended on Thursdays. In the TDM treatment the teachers made all the decisions concerning the operation of the class. The DSM treatment encouraged the students to share in the decision-making process. The same teachers were used in the administration of both treatments. The control group did not receive any treatment nor was any physical education program provided at the school. The purpose of this control group was to provide baseline data to determine further whether any changes in body concept and anxiety did result from the treatment effects.

In addition to the use of the same teachers, two other common elements controlled for were: time of instruction, and curriculum. The instruction for the program was given by six instructors who were physical education majors.

Verification of Treatments

For the purpose of this study, the Cheffers Adaptation of Flanders Interaction Analysis System (CAFIAS) (1974) was used to identify predominant teaching patterns inherent in the teacher-directed and decision-sharing models.

Mancini (1974) and Martinek et al (1977) found from their studies with identical teaching models, that two specific teaching patterns were inherent

in each approach. For example, in the TDM group it was found that the CAFIAS pattern described the teacher as lecturing and giving convergent directions with the student exhibiting predictable non-verbal responses. In the DSM group both studies found that the CAFIAS pattern described the teacher as lecturing and giving convergent directions with the student exhibiting predictable non-verbal responses. In the DSM group both studies found that the CAFIAS pattern described the teacher as predominantly lecturing and asking questions, with the student exhibiting both predictable and unpredictable verbal and non-verbal responses as the result of the teacher's questioning, encouragement, and acceptance. Many of the verbal and non-verbal responses were the result of evaluation and synthesis by the student.

During the third and tenth weeks of the treatments, three of the six teachers were randomly selected and coded for the purposes of verifying the two treatments used in the study. From the analysis of the CAFIAS data, the teacher-student behaviors for both the TDM and DSM groups were found to be identical to those reported by Mancini (1974) and Martinek et al (1976).

Instrumentation

Osgood's Semantic Differential Technique (Osgood and Suci, 1955) was used to determine the measurement of body concept. The scale consists of 17 bi-polar adjectives which refer to the feelings that a child has about her/his body. When considered as a composite score, it puportedly serves as an index of body concept. The child responds to each pair of adjectives by marking a number along a seven-point continuum. For example, the child is asked to describe whether her/his body is "beautiful" or "ugly". If the child feels strongly that her/his body is beautiful then the number closest to that

adjective is marked. These feelings may change with various degrees of intensity so that a child may mark any number along the seven-point continuum. Osgood and Suci recommended this technique because of its ability to allow subjects to synthesize as well as refine self-disclosures more effectively. It was also felt that the majority of subjects carry about stabilizing frames of reference based on past experiences. Therefore, the absolute judgments of bi-polar adjectives is really a comparison of a multitude of related concepts.

The 17 bi-polar adjectives were selected from a pool of fifty items originally selected by Osgood and Suci (1955). The criterion used for the selection of the 17 items was based on their high factor loadings from the factor analysis applied to the original 50 items. All 17 adjectives had factor loadings .75 or above.

The measure of anxiety was derived through the use of the General Anxiety Scale for Children (GASC) (Sarason et al, 1969). The scale consists of 45 items that refer to those feelings children have about themselves in certain situations. The child is asked to answer either "yes" or "no" on how he/she would feel in various stressful circumstances. A sample statement is: "Do you get scared when you have to walk home alone at night?" If a child answers either "yes" to this statement, then one point is given. There are no points given for a "no" answer. The GASC also contains 11 like scale items in order to prevent unidirectional responses from samples tested.

Criterion validity measures were established by comparing the GASC scores with test anxiety levels and mental ability for first through sixth grade children. It was found that the correlations between GASC scores and test anxiety level ranged from .47 to .69. Correlations with IQ scores ranged

from -.06 to .31 (Sarason et al, 1969).

In order to control for the Hawthorne effect, all three groups were administered the tests by the same testers at the elementary school sites.

Results

Body Concept

A 2 x 2 x 3 factorial analysis of covariance (pre-test serving as a covariate) was used to test for sex, grade, and treatment. Significant F ratios were found for the main effects of sex on body concept, $F(1,134) = 5.722$, $p < .01$. The adjusted post-test means for male and female were 37.20 and 41.87, respectively. Non-significant ratios were found for the main effects of treatments and grade for body concept improvement. Additionally, no interaction effects were detected. Table 2 provides a summary of the data analysis on the body concept scores.

INSERT TABLE 2 HERE

Anxiety

A 3-way interaction effect was found for treatment, grade and sex, $F(2,134) = 4.689$, $p < .01$, indicating separate treatment x grade interactions for males and females. After analyzing the male and female groups separately, a significant treatment x grade interaction for males, $F(2,64) = 4.786$, $p < .01$, and females $F(2,69) = 6.346$, $p < .01$. Figures 1 and 2 graphically illustrate the treatment x grade interaction for male and female samples along with adjusted post-test scores. The univariate F revealed that the TDM fourth grade males displayed lower anxiety scores than the third grade males, $F(1,16) = 10.690$, $p < .01$. Non-significant grade differences were found in both DSM and control male groups.

A univariate analysis on females also revealed that fourth grade girls had lower anxiety scores than the third grade in both the TDM group, $F(1,24) = 12.191$, $p < .01$, and control group, $F(2,20) = 6.669$, $p < .01$. Non-significant grade differences were found in the DSM group.

INSERT FIGURES 1 AND 2 HERE

Univariate analyses were also made to determine the simple main effects of treatments within each grade for the male and female groups tested. Table 3 provides a summary of the data analysis on the anxiety scores for third and fourth grade males and females along with adjusted post-test means.

INSERT TABLE 3 HERE

In analyzing the male group first, a significant treatment effect was found only in the fourth grade, $F(2,33) = 7.895$, $p < .01$. The Duncan Multiple Range test was applied to locate specific group differences. The post hoc analysis revealed that the TDM males displayed significantly lower anxiety scores than both the DSM and control groups ($p < .01$). It was also found that the DSM group displayed significantly lower anxiety scores than the control group ($p < .01$).

The analysis of the female group showed that there was a significant treatment effect found only for third grade females, $F(2,31) = 5.980$, $p < .01$. Post hoc analysis showed that the DSM group scored significantly lower than the TDM and control groups ($p < .01$).

Discussion

The non-significant differences between treatment groups for body concept scores indicate that the TDM and DSM approaches had similar effects on positive concepts of the body. These findings are somewhat contradictory to an earlier study by Tanner (1969) who found that children in a teacher-directed movement program had a more positive view of their body than those exposed to a more unstructured setting. However, it should be pointed out that although there were non-significant differences between the treatment and control groups, the TDM and DSM groups produced higher mean scores than the control group. There exists the possibility that a longer treatment period might have produced significant increases over the control group. Because the design of the inquiry called for collection of data in the "real school setting", the availability of teachers and instructional time was limited. Therefore, the use of longer treatment effects appears to be most desirable in future research projects. Martinek and Zaichkowsky (1977) and Garfinkel (1958) further encouraged a longer time period when conducting research into various affective components of elementary age children.

The findings also illustrate that third and fourth grade males had a lower concept of their bodies as compared with their female counterparts. This may be socially incongruent since society often equates the male body with strength and the female body with weakness. However, the available scientific evidence appears to contradict this hypothesis (Fisher, 1973; Pitcher and Prelinger, 1963). For example, it has been found that boys are more anxious about the potential incapabilities of their bodies in various physical encounters. This further supports the contention that physical activity is a viable and interactive component affecting the child's perception of the physical capabilities of her/his body.

The majority of studies that have dealt with structured/unstructured characteristics have been equivocal in terms of their effects on the anxiety levels of elementary-age children. For example, Ford (1975) and Peterson (1976) found that the structured/unstructured dichotomy demonstrated minimal effects on the anxiety level of young children. Contrarily, Jackson and Getzels (1959) found that there was a significant relationship between teacher autocracy and anxiety. In looking at the anxiety scores of this study, it was found that the treatment and grade variables were interacting factors in the reduction of anxiety in the male and female groups tested. Further analysis of males and females indicated that the third grade boys and girls appeared to develop higher anxiety levels than the fourth grade when exposed to a teacher-directed model of instruction. Similar grade differences were also found in the female control group, illustrating that these grade differences were due to developmental factors rather than instructional.

The subsequent analysis of simple treatment effects further demonstrated that a teacher-directed instructional model had more positive effects on lowering anxiety levels in fourth grade males than a decision-sharing one. However, the analysis of third grade females revealed that a decision-sharing approach had significant effects on the reduction of anxiety when compared to the teacher-directed model. Therefore, it seems that the age variable, as well as specific instructional models, are important concerns for the teacher when dealing with remedial considerations for the hypertensive child. It is also important to note that the anxiety scores in both treatment groups for fourth grade males were significantly lower than the control group. At least for this age and sex, this finding supports the contention that physical activity provides a cathartic outlet for anxiety and tension.

The results of this study suggest that the search for generalizations about anxiety and human behavior must take into account the complex interaction of variables in the human environment. Researchers seeking the "best" teaching method should be asking, "Best for whom?" and "Best for what?" This investigator believes that these questions represent the reality factors which force upon the researcher the necessity of a limited step by step approach. To the extent that these factors are effectively dealt with will ultimately diminish the discrepancies between potential and performance in young children.

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TABLE 1

GROUP X GRADE X SEX BREAKDOWN
OF 147 SUBJECTS TESTED

Group Tested	N	Grade 3	Grade 4
TDM Group	46	9 Boys 13 Girls	10 Boys 14 Girls
DSM Group	53	13 Boys 12 Girls	14 Boys 14 Girls
Control Group	48	12 Boys 10 Girls	13 Boys 13 Girls

TABLE 2

SUMMARY OF ANCOVA FOR BODY CONCEPT SCORES

Source of Variance	SS	df	MS	Unadjusted Pretest Means	Adjusted Posttest Means	F
Main Effects						
Treatment	120.34	2	60.17	(T)44.06 (D)41.55 (C)35.62	39.17 40.69 38.86	0.42
Grade	10.18	1	10.18	(3)38.81 (4)41.81	39.87 39.40	0.07
Sex	814.54	1	814.84	(M)41.28 (F)39.58	37.20 41.87	5.72*
Interaction (2-way)						
Treatment x Grade	127.26	2	63.63	_____	_____	0.45
Treatment x Sex	384.41	2	192.20	_____	_____	1.35
Grade x Sex	4.30	1	4.30	_____	_____	0.03
Interaction (3-way)						
Treatment x Grade x Sex	148.17	2	74.09	_____	_____	0.52
Residual	19075.25	134	142.35	_____	_____	____
Total	31580.41	146	216.30	_____	_____	____

*Significant at the .01 level

TABLE 3

SUMMARY OF ANCOVA ON ANXIETY SCORES FOR THIRD AND FOURTH GRADE MALES AND FEMALES

Source of Variance	SS	df	MS	Unadjusted Pretest Means	Adjusted Posttest Means	F
Third Grade Males:						
Treatment	38.59	2	19.30	(T)22.49 (D)26.69 (C)24.91	28.04 25.58 27.50	0.38
Residual	1496.73	30	49.90			
Total	3064.73	33	92.871			
Fourth Grade Males:						
Treatment	570.15	2	285.08	(T)21.50 (D)23.14 (C)27.76	18.65 24.04 26.98	7.89*
Residual	1191.56	33	36.11			
Total	2874.10	36	79.84			
Third Grade Females:						
Treatment	381.89	2	190.94	(T)22.46 (D)14.94 (C)22.80	21.99 15.38 22.76	5.98*
Residual	989.77	31	31.93			
Total	2657.88	34	78.17			
Fourth Grade Females:						
Treatment	36.44	2	18.22	(T)15.72 (D)16.50 (C)15.92	15.31 17.37 15.43	0.79
Residual	847.71	37	22.91			
Total	1961.90	40	49.05			

*Significant at the .01 level

FIGURE 1

Treatment x Grade Interaction on
Anxiety Scores for Males

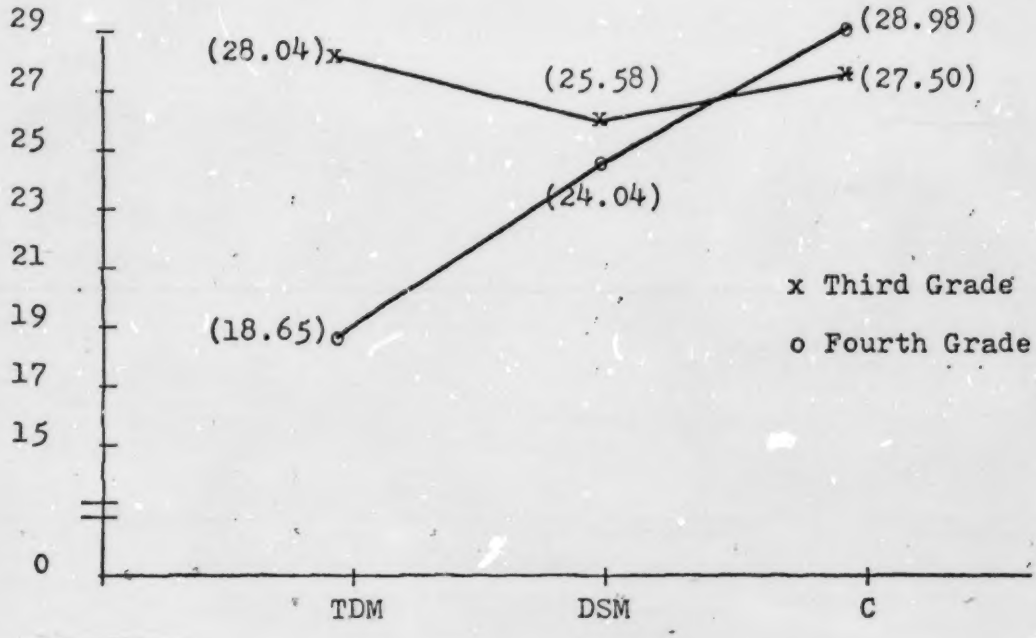

FIGURE 2

Treatment x Grade Interaction on
Anxiety Scores for Females